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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,460	11/14/2003	Rodney Smedt	TWI-33110	2490

7590 09/08/2006

## STALLMAN & POLLOCK

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EXAMINER

STOCK JR, GORDON J

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 09/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/714,460	Applicant(s) SMEDT ET AL.	
	Examiner Gordon J. Stock	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 6/15/06.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-22 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. The Amendment received on June 15, 2006 has been entered into the record.

#### *Claim Rejections - 35 USC § 101*

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. **Claims 1-6, 13-22** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. In **claims 1, 6, 13, 22**, the particular steps of analyzing and generating a total overlay measurement (**claim 1**); the two determining steps, forming step, and adding or subtracting steps (**claim 6**); and the particular measuring gross and fine overlay and generating a total overlay measurement steps (**claims 13 and 22**) are abstractions without a tangible result. Merely ‘analyzing/generating/determining/forming/adding or subtracting/measuring’ would not appear to be sufficient to constitute a tangible result, since the outcome of the ‘analyzing/generating/determining/forming/adding or subtracting/measuring’ has not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. See OG Notices: 22 November 2005, "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility".

Specifically: Part b. *Practical Application the Produces a Useful, Concrete, and Tangible Result* under Section IV *Determine Whether the Claimed Invention Complies with the Subject Matter Eligibility Requirement of 35 U.S.C. Sec. 101*, sentence 3, in the OG Notice from 22 November 2005 states ‘In determining whether the claim is for a “practical application,” the focus is not on

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whether the steps taken to achieve a particular result are useful, tangible, and concrete, but rather that the final result achieved by the claimed invention is “useful, tangible, and concrete.”

**Claim 2-5, 14-21** are rejected for being dependent upon a rejected base claim. In addition, the further limiting of the parent **claims 1 and 13** with the particular limitations of **claim 2-5, 14-21** does not constitute a tangible result to overcome the rejection under 35 U.S.C. 101 above.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 7-10, and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sezginer et al. (WO 02/065545)—previously cited**.

As for **claim 7**, Sezginer discloses the following: an overlay metrology target comprising one or more upper gratings formed on an upper layer of a sample, each paired with a respective

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lower grating formed on a lower layer of the sample (Fig. 5: 10 and 20; Figs. 12 and 21); each grating having a total width dimension (total width as evidenced by width of grating structures: Fig. 12: 120 and 122 and Fig. 21: 212a, 212b, 214a, 214b) and total length dimension (Fig. 5: length dimension parallel with lines of gratings of 10 and 20); with at least one grating on the upper layer differing in at least one of the X or Y dimensions than its grating pair (Fig. 12: 122 is wider than 120; Fig. 21: asymmetric gratings 214a and 214b wider than symmetric gratings 212a and 212b). As for having a difference sufficient to facilitate measurement of gross overlay by an optical microscope, Sezginer is silent. However, Sezginer teaches using gross overlay to ensure no ambiguity if fine overlay exceeds a specific amount (page 28: lines 15-35; page 29: lines 1-10). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made that the target did have an amount sufficient to facilitate gross overlay measurements, any amount, because gross overlay is done to ensure that there is no ambiguity in the fine overlay measurement.

As for **claims 8-9**, Sezginer discloses everything as above (see **claim 7**). In addition, he discloses that one grating is differently sized in both the x and y dimension (Fig. 22; page 35: lines 15-16; wherein, asymmetric gratings are wider than symmetric gratings evidenced by Fig. 21: 212a, 212b, 214a, 214b).

As for **claim 10**, Sezginer discloses everything as above (see **claim 7**). In addition, he discloses the grating is formed as a parallel series of lines (Fig. 21: 212a, 212b, 214a, 214b in evidence of Fig. 5: 10 and 20).

As for **claim 12**, Sezginer discloses everything as above (see **claim 7**). In addition, he discloses that each grating is formed as a two-dimensional array (Fig. 21: a two-dimensional

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array of components with height and width: 212a, 212b, 214a, 214b) of three dimensional features (length as a third dimension as evidenced in Fig. 5: 10 and 20).

*Allowable Subject Matter*

7. **Claims 1-6 and 13-22** would be allowable if rewritten to overcome the rejection under 35 U.S.C. 101 above.

**Claim 11** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to **claim 1**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method for optically inspecting and evaluating a sample the particular generating a total overlay measurement step, in combination with the rest of the limitations of **claims 1-6**.

As to **claim 11**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an overlay target 'at least one grating differs from its pair in the dimension that is parallel to the grating lines,' in combination with the rest of the limitations of **claim 11**.

As to **claim 13**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method for controlling overlay within semiconductor wafers the particular generating a total overlay measurement step, in combination with the rest of the limitations of **claims 13-21**.

As to **claim 22**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method for monitoring overlay in a semiconductor wafers the particular

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generating a total overlay measurement step, in combination with the rest of the limitations of **claim 22**.

### *Response to Arguments*

8. Applicant's arguments with respect to **claims 7-10 and 12** have been considered but are moot in view of the new ground(s) of rejection. In addition, Examiner apologizes for the inconvenience but upon further consideration claims 1-6, 13-22 have been rejected under 35 U.S.C. 101.

### *Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US 2002/0149782 A1 to Raymond

US 2006/0065625 A1 to Abdulhalim et al. (specifically, claims 30-31)

### *Fax/Telephone Numbers*

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and

2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

*Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (571) 273-8300*

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (571) 272-2431.

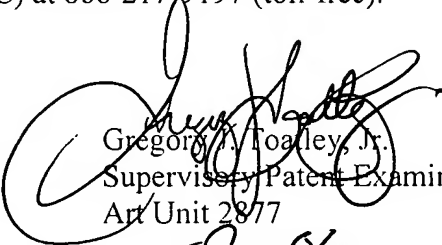
The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached at 571-272-2800 ext 77.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private Pair system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gs

August 31, 2006

  
Gregory J. Toatley, Jr.  
Supervisory Patent Examiner  
Art Unit 2877  
58006